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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,818	10/16/2003	Ho-Soon Lee	5000-1-366	8489
33942	7590	10/31/2005	EXAMINER	
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			HUGHES, JAMES P	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/686,818,

Applicant(s)

LEE, HO-SOON

Examiner

James P. Hughes

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Response to Arguments

1. Applicant's argument and supplied definition for "flame-retardant material" as "a material that delays spread of a flame to any degree" (see page 7) is persuasive as it would be understood to one of ordinary skill in the art who is familiar with the materials typically employed in fiber optic cables. The objection to claim 10 is withdrawn.

Applicant's remaining arguments filed on August 22, 2005 have been fully considered but they are not persuasive.

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2. Applicant's argument that the term "substantial" is a "meaningful ^{modifier} implying 'approximate'" is unpersuasive. The term used in claims 3, 4, 13, and 14 is unclear when given its broadest reasonable interpretation as read in light of the specification.

3. Regarding the art rejections of claims 1 and 3-10 over Bonicel et al. (6,035,087) in view of Hutton et al. (6,421,487); Applicant argues that neither Bonicel nor Hutton teach the amended limitations because neither "disclose[s] tension members shaped so as to fit and cover the valleys formed by the ribbon bundles" (See page 8). This argument is not persuasive as Hutton does teach such a limitation as set forth in the rejections below.

Claim Objections

4. Claims 3, 4, 13, and 14 are objected to because of the following informalities. The term "substantially" as used, for example, in claim 3 in phrase "the optical fiber cable has a diameter

Art Unit: 2883

substantially less than 3.0 mm” (emphasis added), the limitation of “substantially” is unclear.

How much below 3.0 mm is the diameter? The term used similarly in claims 4, 13, and 14.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonicel et al. (6,035,087) in view of Hutton et al. (6,421,487). Bonicel et al. (6,035,087), herein referred to as “Bonicel”, teaches an optical fiber cable comprising: a ribbon fiber bundle formed by stacking a plurality of ribbon optical fibers (e.g. 9, 11), each comprising a plurality of optical fibers (e.g. 2b) arranged in parallel surrounded by a PVC jacket. It is also taught that the array of ribbons may be surrounded by a jacket (or binder or tape) to keep the ribbons tightly held. The array of ribbons is subsequently surrounded by an outer PVC sheath (e.g. tube 3b). When arranged, valleys form between the end curves of each ribbon (9, 11). (See e.g. Col. 3, ll. 45 – Col. 4, ll. 40)

Following, Bonicel teaches that fiber reinforcing tension members (e.g. FRP materials) may provide structural support as is well known in the art. The tension members (e.g. 32) may be viewed as covering intersection areas between the external circumferential surfaces of the plurality of ribbon optical fiber, defining valleys. (See e.g. Fig. 3)

Art Unit: 2883

Regarding claims 3 and 13; Bonicel teaches that the optical fiber cable may have a diameter in the range of 1.2 – 2.0 (mm). (see e.g. Col. 4, ll. 20-25)

Bonicel does not explicitly teach what materials the jacket (or binder or tape) may be made from. However, Bonicle does teach that various materials may be used in optical fiber protection such as PVC and elastomers – both of which would have been known to one of ordinary skill in the art at the time of the invention to delay the spread of a flame to any degree. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ PVC in the jacket (or binder or tape) because it would allow you to efficiently couple the ribbon fibers.

Regarding claims 4 and 14; Bonicel does not explicitly teach the mass of the optical fiber. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to construct the device of Bonicel with a mass substantially less than 10 (or 15) kg/km because this would allow easier transport and operation of the fiber.

Regarding claim 10; Bonicel does not explicitly teach that the outer sheath is formed from a flame resistant material. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ a flame resistant material because it will further protect the optical fibers (e.g. 2b). (See e.g., Col. 2, ll. 45 – Col. 4, 45)

Additionally, Bonicle does not explicitly teach how the FRP tension members are arranged in the ribbon fiber with respect to the fibers (9,11).

Hutton et al. (6,421,478) teaches an optical fiber cable comprising an array of ribbon fibers (e.g. 44) surrounded by a protective material (e.g. 30) with plurality parallel tension members (e.g. 32) extending in the longitudinal direction arranged in valleys formed between the end curves of each ribbon fiber. (See e.g. Col. 6, ll. 35-65)

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the tension member placement of the Hutton invention in the invention of Bonicle because this will reduce the cross sectional area of the fiber.

6. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonicel et al. (6,035,087) in view of Hutton et al. (6,421,487), in further view of Hurley (6,185,353).

Bonicel in view of Hutton teaches an optical fiber cable as discussed above.

However, Bonicel in view of Hutton does not explicitly teach that the pluralities of tension members are substantially semicircular in shape. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ tension members with a substantially semicircular shape because such shapes of tension members are known in the art (e.g. as taught by Hurley) and they would allow a more efficient device, for example, they would allow a more precise alignment with the binders. One would have been motivated to have a greater alignment with the binders because this would allow a more compact cable, thus saving space in an optical fiber installation.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

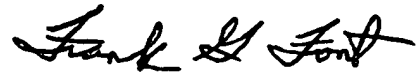
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James P. Hughes whose telephone number is 571-272-2474. The examiner can normally be reached on Monday - Friday 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2883

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James P. Hughes
Patent Examiner
Art Unit 2883



Frank G. Font
Supervisory Patent Examiner
Technology Center 2800